chamber by a port in the hearth of the furnace. The velocity of the current of gases in the chamber is retarded because the chamber is formed as an inverted weir having a reservoir (the height of the roof above the hearth being *hi>h);* the ingots are carried upon the hearth. Two currents of gases are possible: *aa* immediately below the roof and *bb* over the hearth. In order to reach the waste-gas outlet the hot gases *aa* must descend a distance *hi* and expend in doing this a certain hydrostatic pressure, which will be designated as *8* mm of water. The current *bb* has to overcome the friction of the ingots. It is evident that the hot gases cannot escape immediately through the waste-gas opening, except in a case where the resistance to the passage of the current of cooler gases *bb,* equal to <5i mm of water, is greater than 5, that is to say, in a case where <5i is greater than *5.*

The greater the width of the furnace in proportion to the

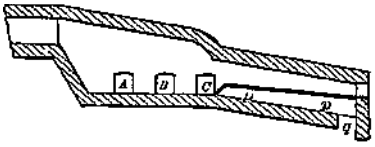

FIG. 119.

FIG. 120.

length of the ingots, the less will be the value of <5i; and therefore there will be no reason to fear that the hot gases will pass immediately to the waste-gas flue.

When the ingots are placed upon pipe skids (Figs. 119 and 120) a channel *pp* will be formed below them through which the cooler waste gases will flow to the waste-gas port *q.* The heating chamber having a descending roof, a free space mm, a well-defined combustion chamber, will be formed under this roof, providing a rationally constructed heating chamber for continuous ingot reheating furnaces. *W*

Figs. 119 and 120 show two methods by which the flow of the

reacting gases may be slowed down sufficiently to permit combustion to be completed in the front portion of the heating chamber. In Fig. 119 this is done by a sharp drop in the roof, dividing the heating chamber into two sections, one much higher than the

[1] This arrangement, moreover, facilitates the operation of the furnace by making it easier to roll the ingots over while they are heating.